

It never ceases to amaze me that students sometimes forget what they have learned, or they don't see the application of what they have learned in other classes.

For example, I often get asked questions about Excel, as it seems to be recommended for use in our chemistry labs. But, I wonder, why do we spend all of our time working with Matlab if we are not going to apply its use to other classes?

For example, I was asked about this data set, collected in the chem lab.

Time	0	20	40	60	80	100	120	140	160	180	200	220	240
Temp	22	22.8	22.9	23	23	23	23	23	23	22.9	22.9	22.9	22.9

Then the reader started asking questions about using Excel, etc, but what about Matlab? After all, didn't we just finish studying the line of best fit?

```
%close figure windows so that new one loads automatically
close all

%load time and temp data
time=(0:20:240)'
temp=[22,22.8,22.9,23.0,23.0,23.0,23.0,23.0,23.0,22.9,22.9,22.9,22.9]

%set up system of equations satisfying y=mt+b
%first, the coefficient matrix
A=[time,ones(size(time))]

%next, the normal equations
M=[A'*A,A'*temp]

%solve the normal equations
R=rref(M)

%pick off the slope and intercept of line of best fit
m=R(1,3); b=R(2,3)

%prepare data for line of best fit
t=linspace(0,240); y=m*t+b;

%plot data and line of best fit
plot(time,temp,'ro',t,y,'b')

%formatting
xlabel('Time') ylabel('Temp') title('Lab Results')

%size file before saving
set(gcf,'PaperPosition',[0,0,4,3])

%print graph to file
print -depsc2 chem.eps
```

These commands were used to produce the following image, which can now be included in a Latex file. Need I say more?

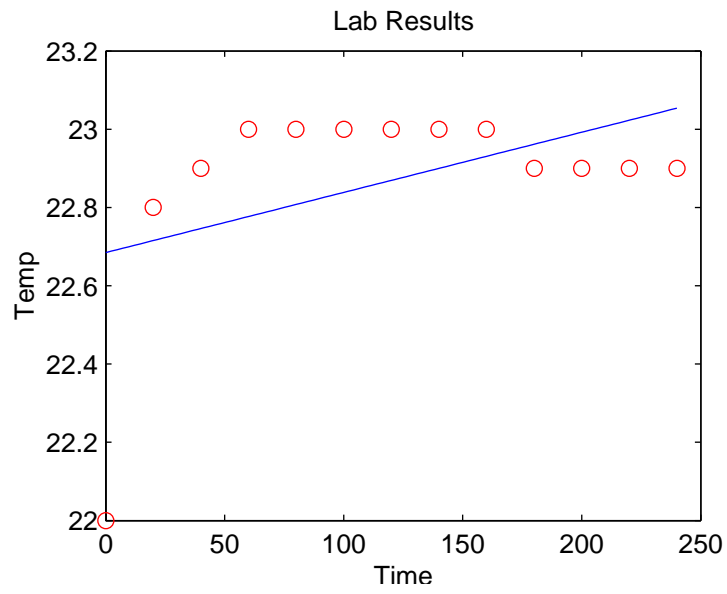


Figure 1: Temperature versus Time.